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TAPE APPLYING APPARATUS

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11 Claims

ABSTRACT OF THE DISCLOSURE

An apparatus for applying a pressure-sensitive adhesive tape to a surface having a carriage means to support a supply of pressure-sensitive adhesive tape above the surface with a length of the tape hanging down, means to lower the carriage to a point at which the length of tape contacts the surface and adheres thereto, means to advance the carriage horizontally and apply a length of the tape to the surface and simultaneously withdraw a slight excess of tape from the supply, means to sever the tape at a point prior to the termination of the horizontal advance of the carriage, and means to return the carriage to its initial position with the excess tape hanging therebeneath.

BACKGROUND OF THE INVENTION

This invention relates to apparatus for applying a pressure-sensitive adhesive tape to a surface and, more particularly, to an apparatus adapted to apply such a tape to the surface of a wood veneer.

In the preparation of wood veneers for the making of plywood, it is often necessary to apply a short length of pressure-sensitive adhesive tape across a crack in the ply or across a veneer patch to hold it in place.

In the past this operation has been performed by hand. Such is time consuming and expensive. It is thus the primary object of the present invention to provide an apparatus for applying a pressure-sensitive tape to a surface of veneer quickly and efficiently.

SUMMARY OF THE INVENTION

The tape applying apparatus of the present invention comprises means to support a roll of pressure-sensitive adhesive tape above a surface to which the tape is to be applied. Means are provided to lower the apparatus to bring a length of tape hanging below the apparatus into contact with the surface. Means are also provided to advance the apparatus horizontally to apply the tape to the surface and simultaneously withdraw an excess amount of tape from the supply roll. Means to sever the tape at a point prior to the termination of the horizontal advance of the apparatus are also provided, and finally means are provided to return the apparatus to its initial position with a short length of tape hanging therebeneath.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of the tape applying apparatus of the present invention in the position it occupies at the beginning of its cycle.

FIG. 2 is a side elevational view of the apparatus of FIG. 1.

FIG. 3 is a front elevational view of the tape applying apparatus in the position it occupies at the termination of its tape applying stroke.

FIG. 4 is a rear elevational view of the apparatus in the position depicted in FIG. 3 with the FIG. 1 position in phantom.

FIG. 5 is an electrical diagram for the apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings and in particular to FIGS.

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1-4, the tape applying apparatus of the present invention comprises a main mounting frame 10 attached to a support 11 by bolts 12. Two brackets 13 are attached to the lower surface 14 of the frame 10 by bolts 15. An arm 16 is pivotally attached to each bracket 13 and a track 17 is pivotally attached to the lower ends 18 of arms 16.

The track 17 comprises an upper plate 17a and a lower plate 17b spaced apart by a rectangular tube 17c, thereby to form a generally H-shaped section which is attached to the arms 16 by means of brackets 19 attached to the upper surface 20 thereof. (See FIG. 2) By this means the track 17 can be lowered and moved parallel to the frame 10.

Means are provided for lowering and raising the track 17 comprising a single acting air motor 21 having a cylinder 22 pivotally attached to one end of the frame 10 and a piston 23 pivotally attached to the corresponding end of the track 17. The cylinder 22 is connected to an air source (not shown) through a solenoid-operated, normally-open valve 24. The piston 23 is normally retracted within cylinder 22, thereby to keep track 17 normally elevated. Cutting the air supply to cylinder 22 permits the track 17 and the assembly it supports to move downwardly under the force of gravity.

A tape applying carriage 25 comprising a back plate 26 and a face plate 27 held apart by spacers 28 and 29 is adapted to travel on the track 17 by means of four wheels 30 journaled on bushings 31 cantilevered from the plates 26 and 27.

Means are provided to move the carriage 25 longitudinally on the track 17, such means comprising a double acting air motor 33 including a cylinder 34 suspended from track 17 by a bracket 35. The piston 32 of the motor 33 is connected to the carriage 25 through the spacer 29. The air supply to motor 33 is controlled by a four-way valve 36 mounted on the frame 10. The valve 36 has a downwardly-biased operating plunger 37 provided with a roller 38 on its lower end.

The roller 38 engages a pad 39 attached to the left one 40 of the arms 16 as they are viewed in FIG. 1. In the upper position of the track 17 and carriage 25, the valve 36 is positioned to pass air to the motor 33 to maintain the carriage at a position to the right as the apparatus is shown in FIG. 1. When the track 17 and carriage 25 lower, the valve plunger 37 extends and the valve 36 is operated to permit air to enter the cylinder 34 to cause extension of the piston 32, shifting the carriage 25 to the left.

A cam track 41 comprising an angle 42 having a vertical leg 43 cut at an angle to form a ramp 44 is mounted on the upper plate 17a of the track 17. A follower guide 45, comprising a sleeve 46 welded to a plate 47, is attached to the back of the plate 26 by bolts 48. A follower bar 49, at the top 50 of which a roller 51 is journaled from a cam follower bracket 52 attached to the bar 49, is adapted to slide within the sleeve 46. A follower arm 53 is pivotally attached to the lower end of the bar 49 by a shoulder bolt 54. Another shoulder bolt 55 is attached to the lower end of the arm 53 and is adapted to ride in an arcuate slot 56 cut in the plate 26. Movement of the carriage 25 from right to left along the track 17 as seen in FIG. 1 (or from left to right as seen in FIG. 4) thus causes the roller 51 to ride up the ramp 44 and then along the top of the leg 43 of the angle 42, pulling the bar 49 through the sleeve 46 and causing the arm 53 to draw the bolt 55 along the slot 56 from one end 57 to the other end 58 for a purpose to be hereinafter described.

Mounted on the plate 26 is a roll of masking tape 59. The tape roll 59 is supported on a reel 60 journaled on a bushing 61. Tape 62 from the roll 59 is led over a nylon roller 63 journaled on a shoulder bolt 64 also attached to the plate 26. An upper tape guide 65 of U-shaped cross section is pivotally attached at one end to the plate 26